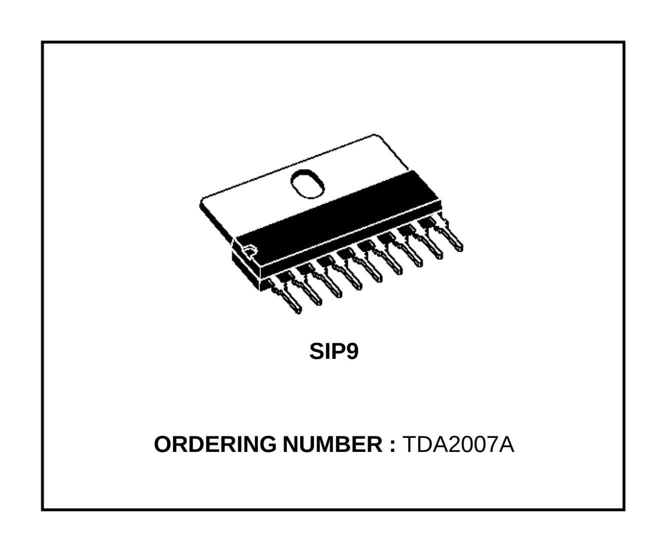


TDA2007A

6 + 6W STEREO AMPLIFIER

- HIGH OUTPUT POWER
- HIGH CURRENT CAPABILITY
- AC SHORT CIRCUIT PROTECTION
- THERMAL OVERLOAD PROTECTION



SIP9

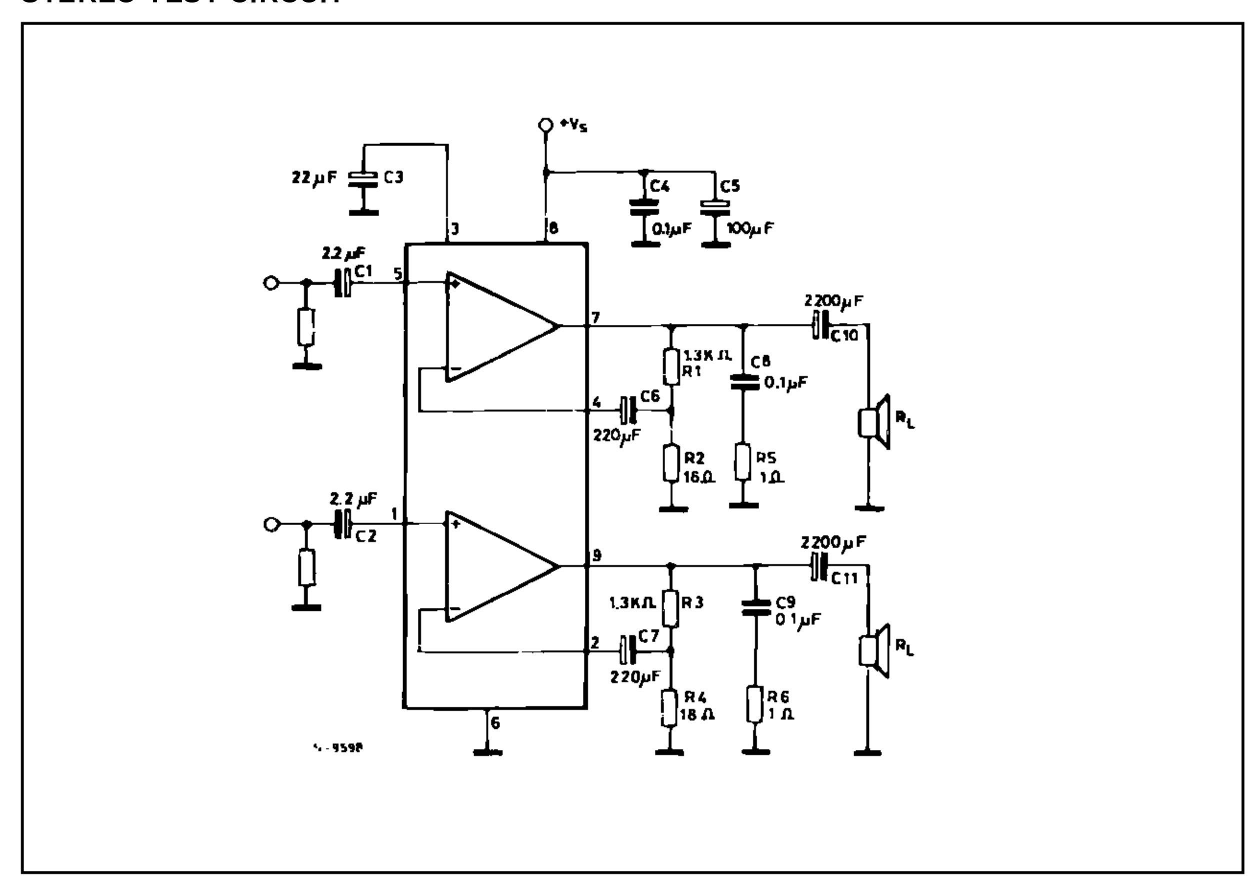
ORDERING NUMBER : TDA2007A



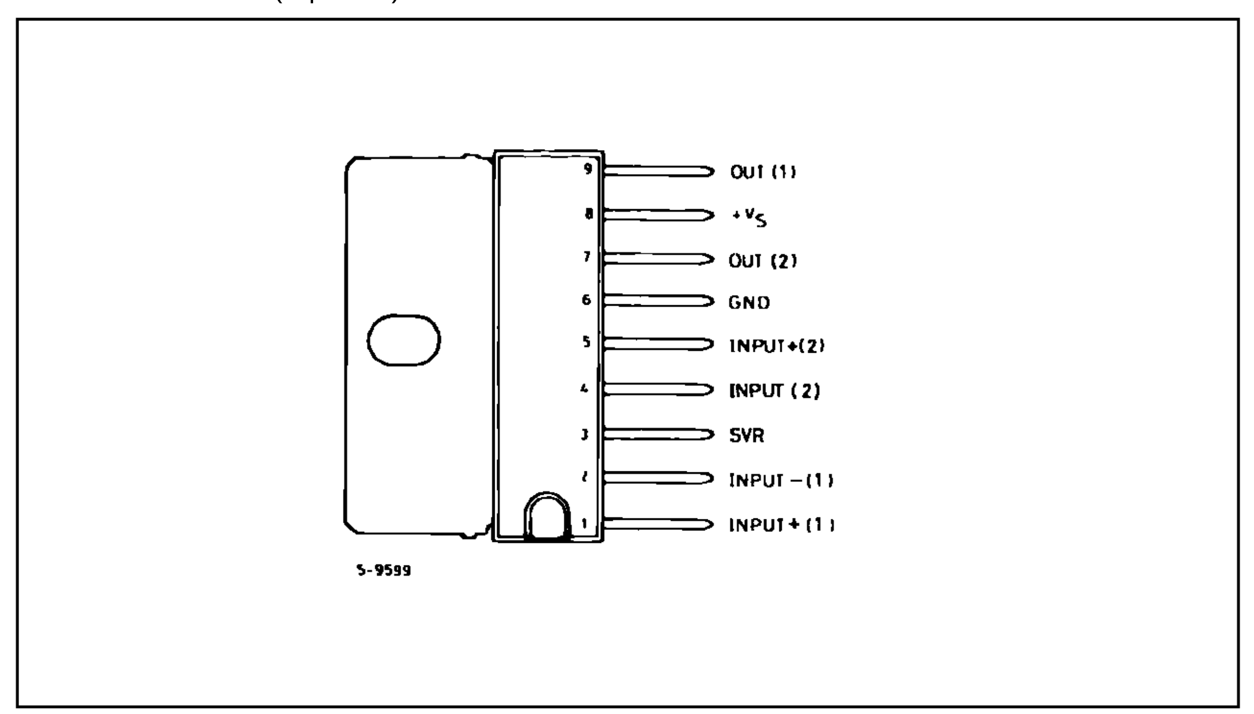
DESCRIPTION

The TDA2007A is a class AB dual Audio power amplifier assembled in single in line 9 pins package, specially designed for stereo application in music centers TV receivers and portable radios.

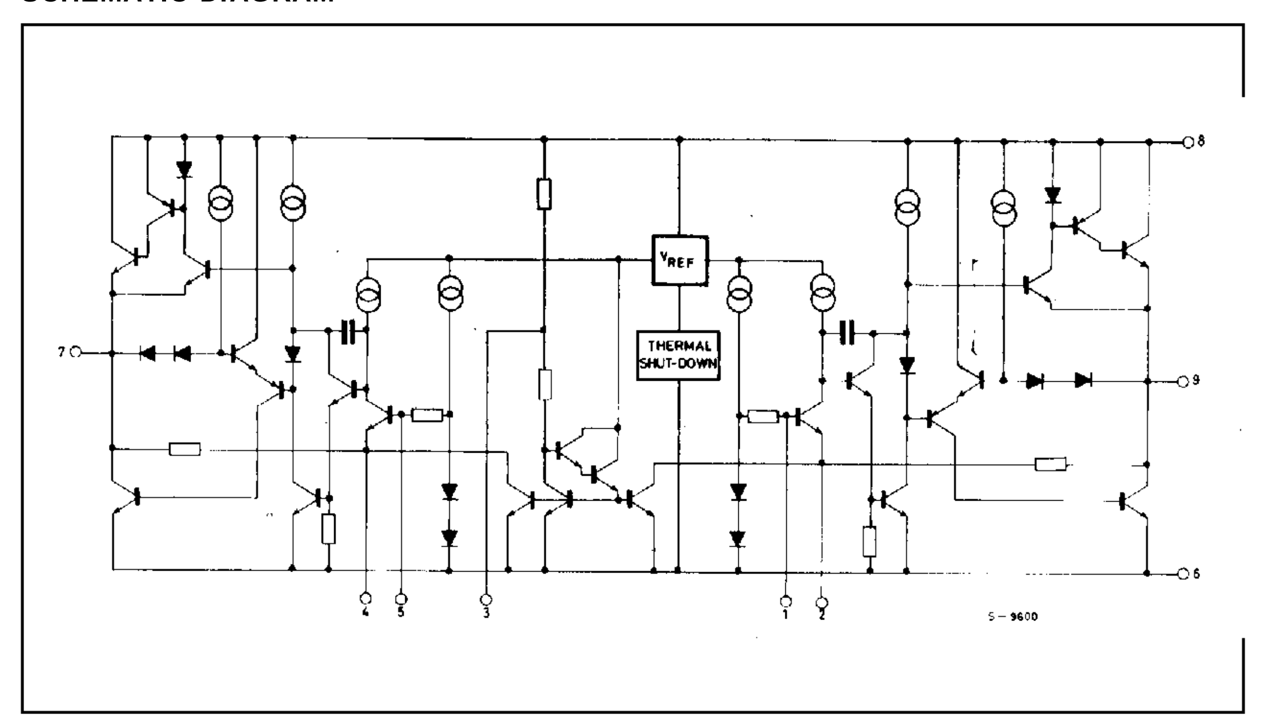
STEREO TEST CIRCUIT



PIN CONNECTION (top view)



SCHEMATIC DIAGRAM



THERMAL DATA

Symbol	Parameter	Value	Unit

ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value	Unit
V_S	**Supply Voltage**	28	V
I_O	**Output Peak Current (repetitive f ≥ 20Hz)**	3	A
I_O	**Output Peak Current (non repetitive t = 100μs)**	3.5	A
P_{tot}	**Power Dissipation at T_{case} = 70°C**	10	W
T_{stg}, T_j	**Storage and Junction Temperature**	–40 to 150	°C

ELECTRICAL CHARACTERISTICS (refer to the stereo application circuit, T_{amb} = 25°C, V_S = 18V, G_V = 36dB, unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_S	**Supply Voltage**		8		26	V
V_O	**Quiescent Output Voltage**			8.5		V
I_d	**Total Quiescent Drain Curent**			50	90	mA
P_O	**Output Power (each channel)**	**f = 100Hz to 6KHz d = 0.5% V_S = 18V R_L = 4Ω V_S = 22V R_L = 8W**	 5.5 5.5	 6 6		 W W
d	**Distortion (each channel)**	**f = 1KHz, V_S = 18V, R_L = 4Ω P_O = 100mW to 3W f = 1KHz, V_S = 22V, R_L = 8Ω P_O = 100mW to 3W**		0.1 0.05		% %
CT	**Cross Talk (°°°)**	**R_L = ∞, R_g = 10KΩ f = 1KHz f = 10KHz**	 50 40	 60 50		 dB dB
V_i	**Input Saturation Voltage (rms)**		300			mV
R_i	**Input Resistance**	**f = 1KHz**	70	200		KΩ
f_L	**Low Frequency Roll Off (–3dB)**	**R_L = 4Ω, C10 = C11 = 2200μF**		40		Hz
f_H	**Low Frequency Roll Off (–3dB)**			80		KHz
G_V	**Voltage Gain (closed loop)**	**f = 1KHz**	35.5	36	36.5	dB
ΔG_V	**Closed Loop Gain Matching**			0.5		dB
e_N	**Total Input Noise Voltage**	**R_g = 10kΩ (°)**		1.5		μV
		R_g = 10kΩ (°°)		2.5	8	μV
SVR	**Supply Voltage Rejection (each channel)**	**R_g = 10KΩ f_{ripple} = 100Hz, V_{ripple} = 0.5V**		55		dB
T_j	**Thermal Shut-down Junction Temperature**			145		°C

(°) Curve A. (°°) 22Hz to 22KHz.

Figure 1 : Stereo Test Circuit (GV = 36 dB).

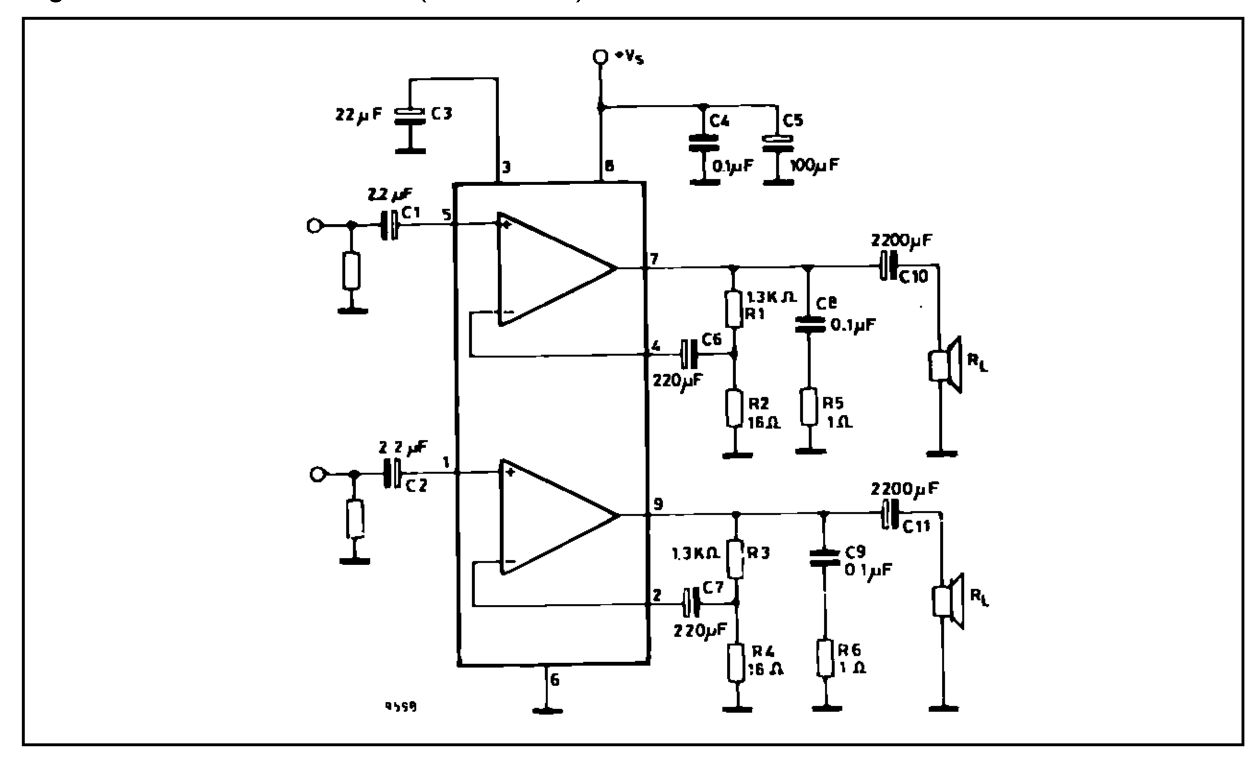
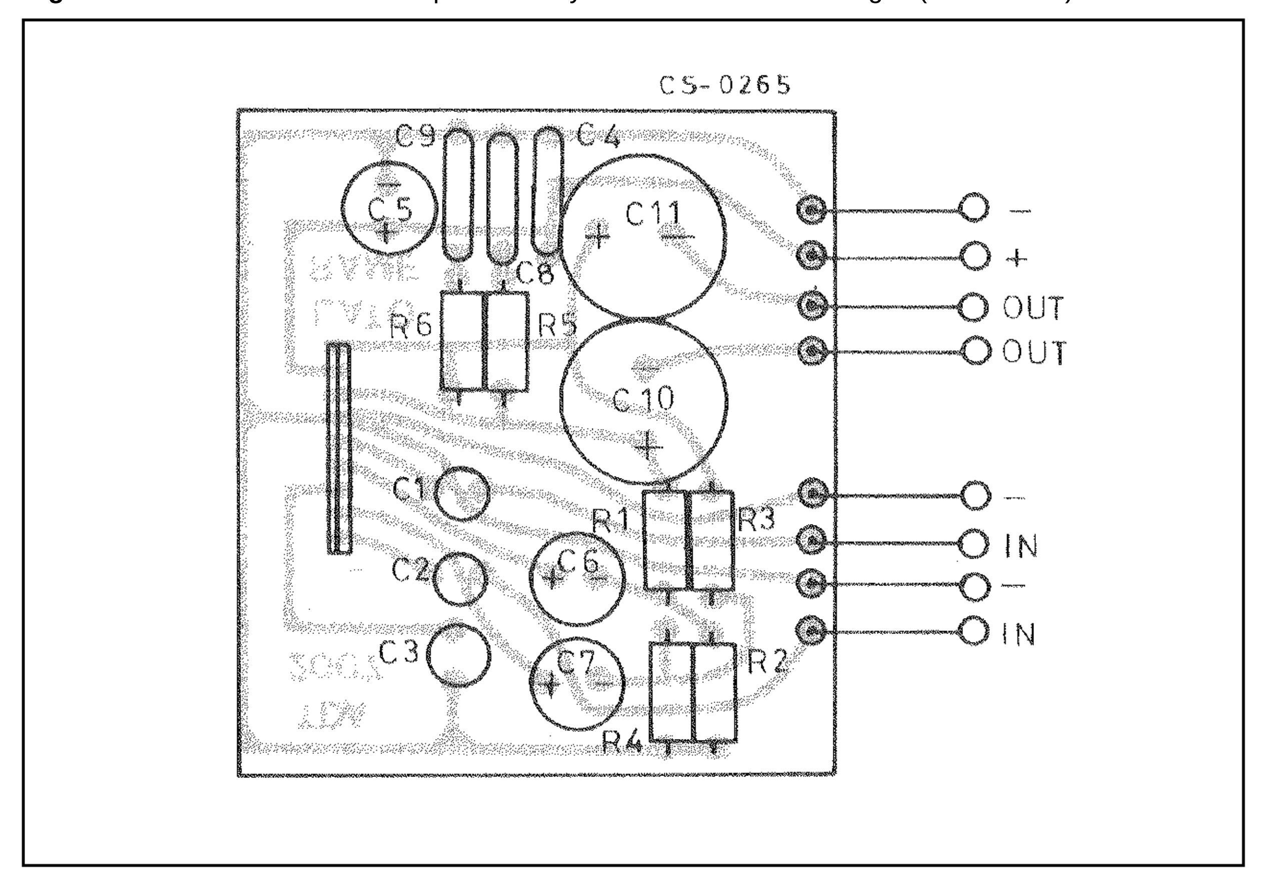


Figure 2 : P.C. Board and Components layout of the Circuit of Fig.1 (1 : 1 scale).



APPLICATION SUGGESTION

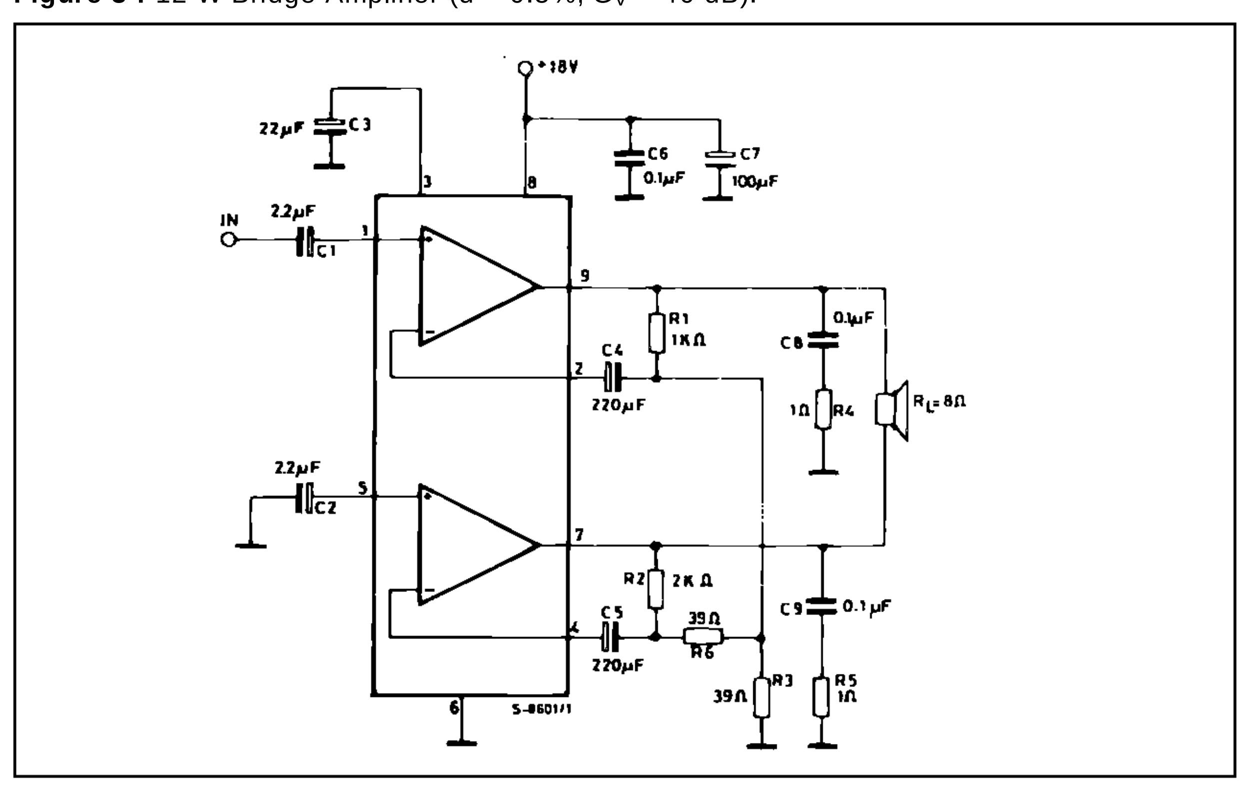
The recommended values of the components are those shown on application circuit of fig.1. Different values can be used ; the following table can help the designer.

Component	Recommended value	Purpose	Larger Than	Smaller Than
R1, R3	1.3KΩ	**Close Loop Gain Setting (*)**	**Increase of Gain**	**Decrease of Gain**
R2 and R4	18Ω		**Decrease of Gain**	**Increase of gain**
R5 and R6	1Ω	**Frequency stability**	**Danger of Oscillation at High Frequency with Inductive Load**	
C1 and C2	2.2µF	**Input DC Decoupling**	**High Turn-on Delay**	**High Turn-on Pop Higher Low Frequency Cutoff. Increase of Noise**
C3	22µF	**Ripple Rejection**	**Better SVR Increase of the Switch-on Time**	**Degradation of SVR**
C6 and C7	220µF	**Feedback Input DC Decoupling**		
C8 and C9	0.1µF	**Frequency Stability**		**Danger of Oscillation**

(*) The closed loop gain must be higher than 26 dB.

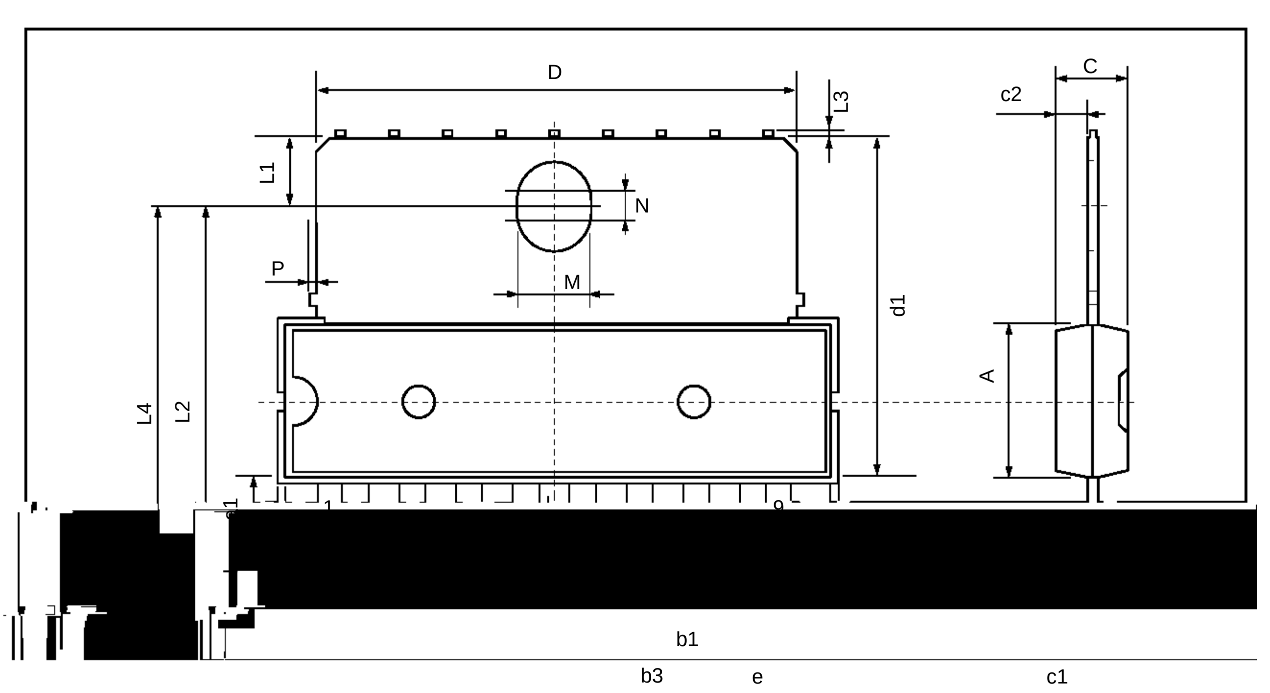
APPLICATION INFORMATION

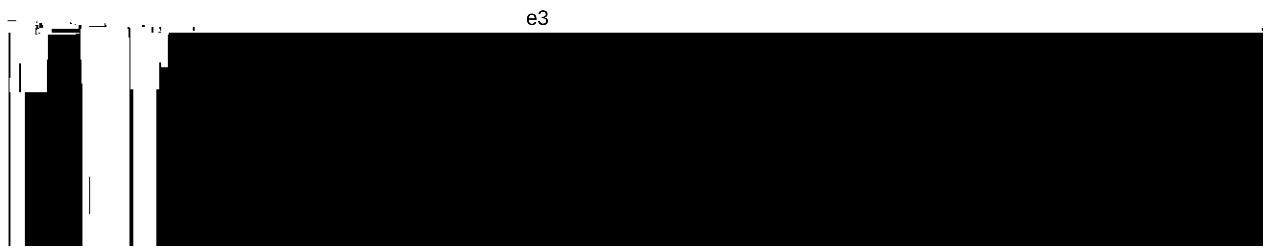
Figure 3 : 12 W Bridge Amplifier (d = 0.5%, G_V = 40 dB).



SIP9 PACKAGE MECHANICAL DATA

DIM.	mm			inch		
	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.
A			7.1			0.280
a1	2.7		3	0.106		0.118
B			23			0.90
B3			24.8			0.976
b1		0.5			0.020	
b3	0.85		1.6	0.033		0.063
C		3.3			0.130	
c1		0.43			0.017	
c2		1.32			0.052	
D			21.2			0.835
d1		14.5			0.571	
e		2.54			0.100	
e3		20.32			0.800	
L	3.1			0.122		
L1		3			0.118	
L2		17.6			0.693	
L3			0.25			0.010
L4	17.4		17.85	0.685		0,702
M		3.2			0.126	
N		1			0.039	
P			0.15			0.006





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